THE VETERINARY RECORD

A Weekly Journal for the Profession.

No. 547. DECEMBER 31, 1898. VOL. XI.

THE JENNER INSTITUTE.

Berlin has its "Koch" Institute and Paris its "Pasteur" Institute, now London has its "Jenner" Institute. This is not a new establishment but an old one re-named. The British Institute of Preventive Medicine was incorporated in 1891, and early this year moved from Great Russell Street to its new and commodious premises near Chelsea Bridge. The change of name brings with it a handsome endowment, and further good fortune follows it by the munificence of Lord Iveagh. The Chairman is Lord Lister, and the director Dr. Allan Mcfadyen. The syllabus for 1899 provides for original research and practical instruction in all matters relating to hygiene, bacteriology, and preventive medicine. The antitoxine laboratories remain at Sudbury.

SOUTH AFRICAN NEWS.

Mr. D. Hutcheon, Chief of the Government Veterinary staff of Cape Colony, has been incapacitated for work by serious illness. When the last mail left he was reported to have almost recovered, but it is anticipated that some time must elapse before he can resume his official duties. This is bad news, but only what might have been expected considering the immense strain to which he must have been submitted during the last three years. Distances in South Africa are hardly appreciated by us who travel over good roads everywhere, and patronise the luxurious corridor train when any journey over 100 miles is undertaken. On another page will be found an extract from the parliamentary news of a Cape paper. It is impossible to please everybody, but the veterinarian comes well out of the discussion of his merits.

We hope Mr. Hutcheon will soon be able to resume the duties he has so long and honourably carried on.

HORSE-SICKNESS.

Dr. Edington, Director of the Bacteriological Institute, Graham's Town, is reported to have succeeded in producing an attenuated virus which is capable of making horses immune to this African plague. As no coherent account of his investigations are yet to hand it is impossible to say anything of the methods employed. That a preventive of horse-sickness would be of inestimable value in South Africa is shown by the fact that nearly 12,000 horses are said to have died from this disease during the past year.

POLITICS *versus* SCIENCE.

The National Association for the Prevention of Consumption disclosed its programme at the Marlborough House meeting. Naturally, the medical men who spoke had in their minds disease of the human subject and the resolution adopted applies only to man. The difficulties of legislative interference with tuberculous men or women are very great. It is easy to isolate a case of scarlet fever for a few weeks, but next to impossible to isolate a consumptive man for years. To remove from his home the bread-winner of a family for fear he might infect others would only be substituting starvation for disease. Even notification of tuberculosis presents difficulties which are insurmountable. Diagnosis is not always correct. Enforcement of any regulations would lead to evasion, change of residence would have to be notified, and no line could be drawn between the cases which are certainly non-infective and those which are dangerous. If once a man were registered as tuberculous he would be a pariah in the workshop, and women would have great difficulty in holding situations in offices or households.

None of these difficulties apply to the disease in domestic animals, and the scientific men who spoke at Marlborough House quite recognised the distinction. Sir William Broadbent said:—"The public has a right to a milk supply which shall be free from tubercle bacilli. . . . . The society will earnestly advocate the testing of herds by tuberculin and the isolation of animals found to be affected." Sir T. Grainger Stewart described how:—"Some of the dairy farmers in the neighbourhood of Edinburgh have made *costly* experiments," and separated the "re-acters" from the healthy cows, not using the milk from such. The word "costly" is well placed and yet no one seemed to think that farmers and dairymen should complain.

Professor McFadyean said:—"Tuberculosis is a common disease in milch cows, and in a considerable proportion of milch animals affected by tuberculosis, the disease attacks the udder and the milk is thus affected. There may be nothing about the milk to warn the individual who sells it, or the more unfortunate individual who drinks it, of its dangerous character. We know that there is scarcely any legal obstacle to the selling of such milk."

All the scientific men are agreed that milk from a tuberculous cow is a danger, no one doubts that it is a direct cause of disease and death in human beings. They all know that tuberculosis in cows might be controlled at some trouble and expense. They seemed to think that such control must be undertaken at the sole cost of the cowkeeper, and that he will spend his time and money quite voluntarily.

The speakers at Marlborough House were not all scientific men—Sir James Sawyer was there, and delivered himself of the curious statement that "in the arrest of other infectious diseases which have been successfully prevented the chief motive power has not been legislation but popular knowledge." Does he refer to small-pox, or what? So far as infectious diseases of animals are concerned we know that not one has been controlled by voluntary action; but that cattle-plague, pleuro-pneumonia, foot-and-mouth disease and variola ovina have been eradicated, whilst glanders, rabies and others have been greatly lessened by legislation.

Unfortunately politics was too well represented at Marlborough House by Lord Salisbury and Mr. Walter Long. The Prime Minister said:—"Nothing has seemed to me more striking in the luminous statement of Sir William Broadbent or in the discussion following than the absence of all desire that the powers of the law should be brought into operation to carry out the objects of the Association." So far as legislation against disease in man is concerned his Lordship is doubtless right. But what did Sir William Broadbent mean by "the milk supply being absolutely free from tubercle bacilli?" Is he content to wait till every farmer and cowkeeper has detected diseased animals at his own expense and removed them from his premises? Is the report of the Royal Commission to be a fruitless enquiry, and free trade in poisonous milk and meat to have the tacit approval of Government? We hardly think so, we believe that the education of the public has gone too far to allow it to acquiesce in any such retrograde action. Lord Salisbury certainly misunderstood the men of science, and allowed political exigencies to guide his thoughts when he said:—"I see my right honourable colleague the Minister of Agriculture here and I speak, so to say, under his eye, but he will join me in saying that it would considerably prejudice the spread of sound opinion upon this subject if any attempt were made to procure or ensure sanitary conditions by any action of central or local authority. It must be thought; it cannot be enforced. I am afraid if you attempted to enforce the use of tuberculin, you would find among the farmers many conscientious objectors who would object to the operation of the law." There are other measures of legislation as well as the use of tuberculin which might be put into use with the best effect and, without which, the infection of human beings must continue.

Mr. Walter Long has almost stamped out rabies, but his success was due to legislation carried out ruthlessly and without the slightest regard for conscientious objectors. Cattle plague was suppressed by the pole-axe. Foot-and-mouth disease only ceased after the most stringent regulations as to movement. What is the sacro-sanctity of tuberculosis that prevents a government from destroying and paying for the clearly demonstrated clinically diseased cow? Lord Salisbury continued:—"Let us be warned by past mishaps." He was thinking of small-pox and might be excused, perhaps, for shrinking from another round with the anti-vaccinators. The Minister of Agriculture could be under no such apprehension as his chief. He might have thought "let us be guided by our past successes" and then he could not have been afraid of legislation against "wasters" and tuberculous udders. Possibly the Minister of Agriculture if he really agreed with the Prime Minister had his mind fixed at the time more on the mishaps of swine fever than on the successes of rabies.

Politics and science are only opposed so long as a majority of voters are ignorant. May the National Society for the Prevention of Consumption rapidly educate the public, and may veterinarians play their part!

W. H.

THE ACTION OF ARECA NUT.

By Henry Gray, M.R.C.V.S., and W. Roger Clarke, M.R.C.V.S.

Areca nut is the seed of the catechu palm (areca catechu), which grows in India and the warmer parts of Asia.

The seed or "nut" is used in the treatment of most of the domesticated animals as an anthelmintic, and especially as a tænia-fuge, and, in the case of the dog, is the drug most frequently employed for this purpose in England. It is usually described as an astringent to the bowels and a vermicide, but both these statements appear to be incorrect. Areca nut undoubtedly acts rapidly and powerfully as an intestinal evacuant, and its effects in the treatment of worms seem to depend more on its evacuant action than on any vermicidal properties, as, in the majority of cases, the worms expelled after the use of the drug are found to be still alive.

The drug can be administered either in the form of a pill, in capsule, in butter, in mucilage, in a confection, or, best of all, in the simple form of the powder, unmixed with any vehicle. It is also often given, especially to sporting dogs, in milk, to which food tænia, it is said, are especially partial. Only recently powdered areca nut should be used, and it should be kept for use in a well stoppered bottle, as, by prolonged exposure in the powdered condition, it loses much of its effect. In all cases the drug should be given on an empty stomach; some keep the dog without solid food of any kind for a whole day, and administer the dose early the next morning, but it usually suffices to give the drug in the afternoon, having allowed no food since the previous evening.

The best method of administration is to drop a suitable dose of the fresh powder into the pouch formed between the cheek and gums, keeping the head raised until the dose has been swallowed. The powder should not be dropped at the back of the throat, as the dog, in inspiration, may draw a portion into the trachea, and thus set up bronchitis. Some, after giving the dose, keep the head tied in a raised position to prevent emesis, but the practice is objectionable. Immediately after swallowing the dose, the animal should receive a copious enema of warm soapy water, to increase the natural backward peristalsis of the intestine, and so prevent a reversed peris-

talsis leading to vomition, which very frequently follows the administration of areca nut *

If the dose is properly swallowed, and not quickly vomited back, then, in a space of time varying usually from ten minutes to half an hour, we notice some signs of nausea and abdominal pain, followed by several evacuations in quick succession. The evacuated matter consists of a small quantity of fæces, a larger amount of flaky-looking and very cohesive mucus, and the worms, which, as before stated, are usually still alive.

If no action has been obtained at the end of half-an-hour, a dose of castor oil and syrup of buckthorn should be given, and the enema repeated. Areca nut usually acts within half an hour, but in some dogs the action is delayed, even for hours. In these cases, exercising the animal sets up peristalsis, accompanied by colic To be effectual as a tæniafuge, areca nut *must* cause a prompt intestinal evacuation.

Like other powerful drugs, areca nut is not without its dangers, and its occasional irregularities of action, which probably depend chiefly on the idiosyncracy of the patient. It is very poisonous to young puppies under six months old. Some older dogs are attacked by syncope immediately after receiving a dose. In young dogs prolapsus of the rectum and intussusception of the intestine may be caused by this drug, and, if given when the bowels are in a state of catarrh, catarrhal enteritis and dysentery may be produced. As previously stated, it often acts as an emetic. In the cat, it causes bronchial breathing and colic.

In the following scale of doses for different animals, the age, size and weight (especially in dogs), and the general condition of the subject, must be considered before fixing on the quantity to be given :—

Dog	10 grains	to	120	grains.
Cat	5	,,	10	,,
Lamb	10	,,	120	,,
Pigeon	5	,,	10	,,
Fowl	10	,,	20	,,

A safe guide in determining the dose is to give *one* grain of the powder to every pound of the animal's weight.

Mayhew advises a ratio of *two* grains to the pound of body weight, but for small pet dogs this proportion is too high, and more than one grain to the pound should not be given.

The antidote to areca nut is belladonna, or hypodermic injections of atropine.

We may conclude with a brief comparison of areca nut, as a tæniafuge, with some other drugs more or less frequently employed for the same purpose.

Kamala has an action similar to, though not so violent as, areca nut, and seems to act as an emetic less frequently than the drug we have been considering. It is as effectual as areca nut, but more costly. *A fresh infusion of the pomegranate root*, or its alkaloid pelletierine, has a similar action to that of areca nut. *Oil of male fern* is objectionable, as it causes much nausea and emesis. It is best used in the form of an emulsion, combined with aromatics. The *phosphate* and the *lactate of strontium*, which are recommended for this purpose by Dr. Labord, of Paris, seem to possess no other action than that of an astringent, resembling bismuth.

Tenaline (formerly called arecaline) is a fluid extract of areca nut, prepared by Messrs. Willows, Francis, Butler, and Thompson, one minim of which is equal to one grain of areca nut in strength. It is certainly handy for dispensing, but has no other advantage over the fresh powder.

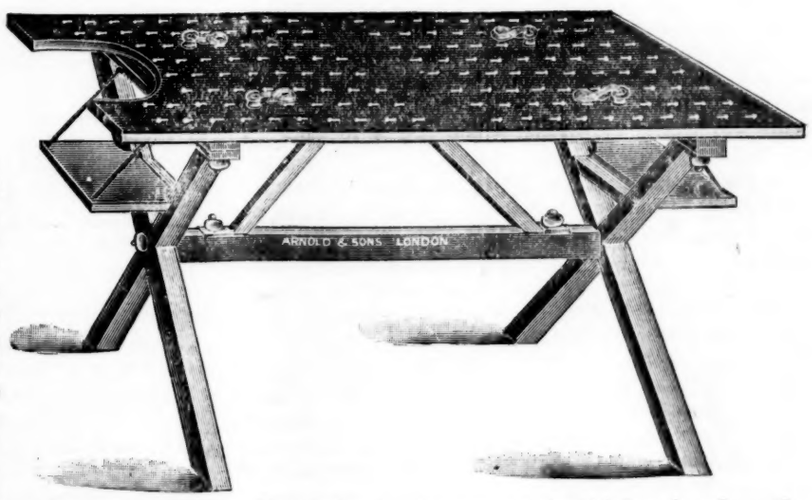
Areca nut, given in the manner indicated above, is one of the best tæniafuges, and is also the least expensive.

* Eserine acts on the alimentary canal of the dog in a similar manner, causing both emesis and intestinal evacuation.

A CANINE OPERATING TABLE.

By Prof. HOBDAY.

Some time ago I forwarded a description of a canine operating table to *The Veterinary Record*, and since then I have had numerous enquiries regarding it. Finding that in many cases practitioners state that they are unable to get a table and keys made properly by the local carpenter, I have placed the matter in the hands of Messrs Arnold & Sons, of West Smithfield. By their kind suggestion numerous improvements have been added, and I think that it is now much more complete and useful.



This pattern of table has been thoroughly tested in the Free Out-patients' Clinique for the past four years, during which time more than 3,000 dogs and cats have been secured for all kinds of operations without injury or accident.

The animal to be secured should be placed on the table with loops of the hobbles as indicated on the diagram, passed and pulled tight over the knees or elbows and hocks.

To fasten the patient in the abdominal position, the fore limbs should be fixed firmly by placing the keys through the holes and turning them round, after which the hind legs are drawn backwards together and spread apart in a similar way, the object being to stretch the animal out *just so tight that it has the minimum amount of room for struggling.*

For operations on the under parts the dog or cat can be placed on the back or side with equal facility.

The table is made of strong wood practically impermeable to water and able to be thoroughly scrubbed and disinfected without fear of cracking or swelling.

The top is moveable and the supports can be folded up, so that when not in use it occupies no great amount of space. At the front and back are brackets constructed to hold vessels containing antiseptics or instruments. The key hobbles are made of brass and therefore will not rust. If desired, the top and key hobbles may be obtained separately, the top being so arranged that it can be fixed to an ordinary table.

MORE ABOUT TUBERCULIN.

By J. M. Watson, M.R.C.V.S.,
Assistant to R. Stevenson, M.R.C.V.S., Longton.

We are all interested in any article appearing on the above subject, and scrutinise tables of temperatures published, with intent to learn details, but the one recorded last week seemed to me, like others I have seen, to be unsatisfactory for the edification of those who have not applied the test.

The tuberculin test is going to take up a considerable time from other practice, and this the busy country practitioner cannot well afford. Therefore, I think we should endeavour to curtail the test to a limited time.

If free criticism is permitted in these columns I should like to make a few remarks about the article by Mr. Harold Sessions, F.R.C.V.S. There was no mention made of the dose given, nor of the deduction he made from his test. Indeed I have not seen a table of temperatures showing what cows had been rejected, passed or made doubtful. Then, again, he took the temperatures once a day for three days before injecting. This is surely a waste of time if the animals are say six to ten miles from home. It is my opinion that if temperatures are taken once before testing it is quite sufficient, and any with an abnormal degree need not be tested then.

Again, I consider that Mr. Sessions allowed too long a time to elapse before taking the first temperatures after injecting, namely, 11 hours. I do not say that any reactions have been missed in that time, but my experience is that a rise can be detected three or four hours before, and verified three and six hours later. My point is to try and confine the test to one day's work. The tables appended will demonstrate what I mean.

In Table I. there are 26 cows the property of a farmer seven miles from Longton. Their temperatures were taken at 6 a.m. on August 19th of this year, before injecting tuberculin in doses averaging from 40*m.* to 50*m.* Temperatures were taken at 2.30 p.m., 6 p.m., and 9 p.m., which I think proved sufficient for all practical purposes. I may say here that we find the above doses quite enough for shorthorn cows. Some of the highest reactions, and they are high enough surely, were got with doses of 45m.

These 26 cows were all of the shorthorn breed and kept in good surroundings, although a number of them were recent purchases. No. 21 had calved the day before testing. Local reactions were almost universally absent. Udder reaction was present only in one or two cases.

Table I.

No.	Temp. before injecting 7 a.m.	P.M. 2.35	P.M. 6	P.M. 9	Result.
1	102·2	102·4	102·4	102	Passed
2	101·6	104	105	106	Rejected
3	101·2	104·6	107·4	106	,,
4	101·8	102	103	102·6	Passed
5	102·4	103	102·4	102·4	,,
6	101·2	104	106	106	Rejected
7	101·6	102	104	105·8	,,
8	102	103	103·4	103·4	Passed
9	100·6	102·4	104·4	105	Rejected
10	100·4	101·8	103	102	Doubtful
11	101	101·2	102	101·4	Passed
12	102	102·2	102	102	,,
13	101 6	103·2	103	103·2	Doubtful
14	101·2	102	102·4	102	Passed
15	102·2	103	103·4	103·6	Doubtful
16	101·4	103	107·2	106·4	Rejected
17	102·2	103	103	102	Passed
18	101	104·2	107·4	105·8	Rejected
19	102	104	106·6	106·2	,,
20	101	102	106·4	106·6	,,
21	100·4	101·4	102	101·8	Passed
22	101·4	104	104·4	105	Rejected
23	102	103	105	105	,,
24	101·2	102	102·4	103·2	Passed
25	101·2	101·2	102	102	,,
26	102	102·8	106·6	106·2	Rejected

Passed—1, 4, 5, 8, 11, 12, 14, 17, 21, 24, 25.
Rejected—2, 3, 6, 7, 9, 16, 18, 19, 20, 22, 23, 26.
Doubtful—10, 13, 15,

As may be seen from the above table tuberculosis is extremely prevalent in shorthorns of this district, in fact it is daily met with in practice.

Table II. shows a more pleasing state of affairs. The 17 cows Nos. 4 to 20 inclusive were Welsh cows all of which stood the test. Nos. 1, 2, 3, 21, and 22, were shorthorns. In this table temperatures were taken four times after injecting, namely, 11·30 a.m., 3 p.m., 6.30 p.m. 9.30 p.m., all on the day they were injected, but I think three times enough, thus—inject at 7 a.m. and take temperatures at 3 p.m., 7 p.m. and 10 p.m.

TABLE II.—Dec. 1st, 1898.

No.	Temp. before injecting A.M. 7.30	A.M. 11.30	P.M. 3	P.M. 6.30	P.M. 9.30	Result,
1	101·4	101·6	101·2	102·2	102	Passed
2	101·2	102·2	106	107	106	Rejected
3	102·2	102	102·4	105	105·2	"
4	101	101·4	101	101	101	Passed
5	101·2	102·2	101·2	101	101·2	"
6	101·4	101·4	101·6	102	101·2	"
7	101·4	101	101·6	102	101·2	"
8	101·6	102	101·2	101	101	"
9	102	102	101·2	101·4	101·4	"
10	101·6	102	101·4	101·4	102	"
11	101·4	101·6	102	102	101·6	"
12	101·4	102	101·2	101·6	102	"
13	103	103	102·4	102·2	102	"
14	103	102·6	102·4	102·2	102·2	"
15	102·2	101·6	102	102·2	102·8	"
16	101·4	102	102·2	101	101·2	"
17	102	102	102	101·6	101·2	"
18	102·2	102·2	102·2	102	102·6	"
19	102	100	101	101·2	102	"
20	102·2	102	102	101·4	103	"
21	102	102	102·6	102·2	102·2	"
22	102	101	102·2	102	103	"

Passed—1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22.
Rejected—2, 3.

As these remarks have been put together rather hurriedly, I may be guilty myself of leaving out details; but I will be pleased to read any discussion on the points I mention. Of course if one has time it would be considered safer to take temperatures oftener, but I see no benefit to be derived by watching the temperatures going gradually down again, in animals which are to all appearance healthy before testing.

Royal College of Veterinary Surgeons.

THE EXAMINATIONS IN SCOTLAND.

At meetings of the Board of Examiners held on December 9th, for the written examination, and on and between December 14th and 21st for the Oral and Practical examinations. The following gentlemen passed their Final Examination and were admitted Members of the Royal College of Veterinary Surgeons:—

DICK COLLEGE.

Mr. T. H. Brown
E. Evans
H. Leyshon
J. H. Tranter
* R. R. Arthur
Mr. D. C. Barringham
J. Duff
T. G. Doyle
T. D. Hughes
T. Morland
Mr. J. L. Dixon.

NEW COLLEGE.

* Mr. W. Ogilvy.

The following gentlemen passed their Third Examination:—

DICK COLLEGE.

Mr. P. Donovan
T. Fleming
Mr. W. Ludgate*
F. W. Paulett

GLASGOW COLLEGE.

Mr. D. McHattie | Mr. A. K. Murray*

The following gentlemen passed their Second Examination:—

NEW COLLEGE.

Mr. W. Greaves
F. Moon
* L. Pitts
† M. Sowerbycoo
Mr. R. Scott
* A. A. Walker
T. Weedall

GLASGOW COLLEGE.

Mr. D. Frew
D. McAlinney
* F. P. Beck
Mr. J. Allan
C. Bell
J. Danskin

DICK COLLEGE.

Mr. F. Moore.

The following gentlemen passed their First Examination:—

NEW COLLEGE.

Mr. C. W. Bourke
R. Hayes
R. Jones
A. B. Mattieson
Mr. H. Sleddon
T. Walker
A. Walker

DICK COLLEGE.

Mr. H. MacKay
J. W. Rainey
Mr. M. Purcell

GLASGOW COLLEGE.

Mr. A. V. Maynard | Mr. J. S. Woodrow

Marked thus * passed with 2nd class honours.
" " † " " 1st " "

R. RUTHERFORD, F.R.C.V.S.,
Sec., Board of Examiners.

VETERINARY SOCIETIES.

NATIONAL VETERINARY ASSOCIATION.

MEETING AT LEEDS, AUG. 11th and 12th.
SECOND DAY.

(Continued from p. 381)

Mr. MCGAVIN: The author has given us a very scientific as well as practical paper, and I congratulate him upon it. With reference to diseases of the cow's udder, if you take them in the early stage, sling the udder, and either pack it with hops or cloth and use cold water, and add any disinfectant you like, you will have very good results, of course combining that with internal remedies as well. My experience bears out that of those practitioners who have seen milk fever arising in animals which have not been milked and whose calves have run with them. I find that by allowing the calf to run with the mother milk fever is to a great extent prevented, but not altogether. You get milk fever in any case if the animal is very plethoric, and especially at this season of the year, do what you will in the way of preventive treatment. We are much indebted to Mr. Thompson for bringing this injection treatment before us to-day, but it was recommeuded by Professor Armytage 30 years

ago in regard to cases of mammitis. He used to advocate the injection of bicarbonate of soda. One thing has never been mentioned to-day, and that is hand-rubbing. I believe that hand-rubbing with any lubricant, such as vaseline or something of that description, is beneficial in the treatment of inflamed udders.

Mr. ROBERTS: I have listened with great pleasure to the discussion which has been originated by this paper. I think both the paper and discussion are likely to be of great good to the members and also to the profession. With regard to milk-fever I have frequently seen the disease in cows which have been running with their calves. I have noticed it repeatedly, so much so that I came to the conclusion it it was not much use at all. I also find the fact of allowing cows to remain unmilked of like importance. I have found that milk-fever took place in both cases in almost the same ratio as it did when they were left alone. With regard to overstocking, I do not think that in itself can be a cause of mammitis. I distinctly remember one case in which we had a cow that was grazing at another man's place; it had three enlargements in the teats and it was impossible to get a drain of milk from the cow. It not being the man's own cow he could not authorise surgical interference, so nothing was done, and although the udder was tremendously full of milk it was never relieved and the cow remained in that condition. By-and-by the gland commenced to dry, and the cow was made a fat cow and sold. I mention this to show that overstocking can be carried to the extreme without causing inflammation of the gland. I think you may have mammitis occur through simple irritation just as you get in inflammation of any other part of the body, say inflammation of the lungs or bowels through getting cold; I think we may get inflammation of the udder just in the same way. I feel certain it is often of a septic nature because I have seen a very great number of cases, where we have retention of the placental membrane, septicæmia is the result, with localisation of the inflammation very often in the udder, and therefore I feel perfectly confident that we may have septic mammitis. I have seen a good deal of gangrene in the udders of cows, and I have seen the udder shell out, as Mr. Thompson said, like a kernel out of a nut. That the disease is of an infectious nature seems to be borne out by the common experience that solitary cases are less common than the simultaneous outbreak of two or more cases. In one outbreak I was not certain whether it was not caused by bad water. We had very bad water for the cows in that place, and it arose in a typhoid condition, and perhaps that was the cause of it. It was either that or infection; I could not be quite clear which. The water was changed and we had no more in that particular place. I believe in cases such as Mr. Gooch mentioned it very often happens that the water source is not sufficiently looked into when we are examining into the health of cows. I have had a great deal of trouble with cracks in cow's teats, just the ordinary cracks. Sometimes they are dreadfully difficult to treat, as the teats are being constantly pulled in milking; it is almost an impossibility sometimes to get them to heal up. I have found boracic acid ointment in these cases a very useful thing.

Mr. HUNTING, Senr.: It is 50 years since I had a large practice amongst cows in London, and you may say perhaps that I am treading upon ground which I now do not know. Mr. Thompson astonished me this morning by asserting that cows have not the power to withhold the secretion of milk. I have had a very practical illustration of this matter. Not very long ago we had a cow which nobody but the cook could milk; she would not yield her milk except to that particular woman. In the North of England where 100 or 120 cows have been kept, as in the particular case I refer to, so important did they consider it that the cow's udder should be perfectly exhausted that that a person was kept to go round with the milkers morning and evening in order that not a drop of milk should be left in the quarter. I am proud to be able to thank the author for his paper, which is one of the most practical and clear I have heard,

Mr. MARSTON: The essay has been most interesting and very practical. With regard to what Mr. Olver said about the calves running with their dams and the dams not being subject to milk fever, in my practice the calves always run with their dams, and milk fever is very uncommon.

Mr. CLARKSON: There is one thing I should like to mention as I think it is uncommon, viz., eczema of the teat. The case was clearly traced to a gardener who had been potting some particular plants called primula, which I think are pretty well known in horticultural circles to cause eczema on the hands of men working amengst them. We had a very difficult cow and this man who had superintendence of the cattle had the milking of her. He communicated the eczema, or the material causing the eczema, from his hands to the teats of the cow. The teats were one mass of scab—a common collar was formed round the whole of the teats.

Mr. S. VILLAR, in reply, said: I must first tender you my sincere thanks for the very kind way in which you have received my paper. Mr. Thompson in his very able opening told us that he had at the present time, and has been having for some time past 8 to 10 or more cases a day of mammitis in his practice. Mr. Olver tells us that at the present time in his practice he has 50 or 60 cases. They suggest that this experience goes to prove that mammitis is not due to septic influence. It seems to me one of the strongest arguments which they could produce in favour of an infective origin. There must be some common cause. Fifty cows in one practice and ten a day in another are not going to bruise their udders to the extent of causing mammitis. There must be some specific organism to produce the disease in such a quantity. Mr. Thompson says that it is the hot weather which causes it indirectly, because it brings flies, and the flies tease the cows and make them gallop about, and afterwards the cows get cold and contract chill. How does this chill of the udder act? How does bruise of the udder act? I am speaking of internal bruise. not an outside one. I take it that a chill or bruise lessens the normal vitality of the tissue, and the consequence is it loses its normal resistant power to the action of germs. It all comes back to germs again. Mr. Thompson shows very forcibly how potent these germs may be. He relates cases where he has had straw-coloured fluid from an inflamed quarter which in twelve hours has altered in colour and become very fœtid. What makes it fœtid? Germs? Undoubtedly! There is nothing else that would. Putrefaction is going on. Mention has been made of blood in the milk, and I am much obliged to Mr. Thompson and Mr. Olver for their very practical recipes. I fancy Mr. Olver said he did not get them well quite so quickly as I have said, that is, within a week. To my mind the great secret in stopping the flow of blood with the milk, that is hæmorrhage into some portion of the udder, is to prevent the cow from walking about. If she is tied up the hæmorrhage very soon ceases, as a rule. That is my experience of it. Mr. Thompson regards cow-pox as a disease of the south, and says he does not get it in Cumberland. I have seen cows coming from Derbyshire with it. The cows causing the notorious outbreak at Hendon, to which I have made allusion, came from Derbyshire. I have many a time seen cows coming from the north with it. I was surprised to hear Mr. Thompson say vaseline was a good thing to put on a sore teat, and subsequently that you can allow the calf to go and suckle. So far as I have seen, if you put vaseline on the teat it is the finest thing in the world to stop the calves sucking. They do not like the flavour of vaseline at all, and would rather go

hungry than have it. It is certain when I say gangrene of the udder apparently does not occur in this country that I am making a very great error. But down south, in my practice, I have never seen it in the cow. Of course that is a circumstance I am very pleased about. They must be very serious cases, and we can very well do without them down in Middlesex. Again, going back to this germ theory, although Mr. Thompson, Mr. Olver, Mr. Gooch all seem to think that I am wrong in ascribing most cases of mammitis to the germ, it is a strange thing they all treat them by antiseptics. Mr. Thompson injects antiseptics and disinfectants into the teat. Mr. Olver does the same thing. Mr Thompson also says he finds a successful treatment is to give hyposulphite of soda internally. How does hyposulphite of soda act? I do not think one could have better proof that mammitis is really a germ disease. He mentions a case of two abscesses in a maiden heifer, and says it was almost impossible, which I admit, for any germs to have got up the duct, inasmuch as the heifer had never been milked. But I venture to point out—I am quoting from another man now—that there are other means of access for the germs besides the milk duct. If you remember I pointed out in my paper that there is a second network of lymphatics situated immediately underneath the skin. Another method of infection of the udder which probably always takes place in tuberculosis is through the blood stream. Germs are brought by the blood stream and get located in the udder. What is there to prevent a fly or other insect penetrating the skin of this heifer's udder and so allowing the admission of germs? Mr. Olver again speaks of the nodular feeling of tubercular udder, and other gentlemen have remarked on that, but I have not noticed one gentleman mention two practical symptoms which to my mind are very characteristic of tubercle of the udder. The first is the extraordinary hardness of the affected quarter. I have noticed it over and over again. The second remarkable symptoms is the absence of pus from the affected quarter. Mr. Hughes speaks of slinging the udder, and certainly says that it is conducive to the cow's comfort. There is no question about that. But I have never been clever enough yet to put a sling on which does not get displaced when the cow lies down, and the cow on subsequent rising gets exposed in a more than ordinary degree to cold. Mention has been made of nervous influence on the udder with regard to the giving of milk. Mr. Gooch has very pertinently pointed out that the sphincter muscle of the teat is a voluntary muscle. It is certainly made of red muscular fibre; there can be no question about that. That nervous influence has a very great deal to do with the surrender of her milk I am confident. I can call to mind two or three cows, which, if you put your hand down towards their back on the milking side would start running their milk. Nervous influence! What else can it be? Mr. Gooch asked me what is the cause of death in such cases as I have related, in which the animals may die in 48 hours. He says, If that is not gangrene, what is it? Well, gentlemen, in my cases it was septicæmia, and not gangrene at all. And the reason I take it of the very acute progress of the disease is the potency of the poison, and perhaps the excessive dose of the poison which has been absorbed. Mr. McGavin points out that 30 years ago Professor Armytage advocated and taught the injection of material into the teats. That only goes to bear out the old saying, that there is nothing new under the sun. That is a very interesting case which Mr. Clarkson has related to us about the gardener, and I should like to ask him whether the gardener who milked the cow had eczema himself.

Mr. CLARKSON: Yes, he had. The whole of the inside of his hands and partly up the arm. The cow was a very difficult one to milk. The boy who helped the gardener could not do it, and the gardener who superintends the whole concern had the cow to milk.

Mr. VILLAR: It is a very interesting case. I have never heard of anything similar. Before I sit down I want to refer to what has been said about the prevention of parturient apoplexy. In the county where I live we get a large number of cases. I have had six cases of parturient apoplexy in 24 hours. I have seen them left many hours without being milked. I have seen them continually milked so that there should be but very slight accumulation in the udder. I have seen them fed under all possible circumstances, and put upon all kinds of diet—some of them pretty nearly starved, and some of them fed on material which one would expect would make them plethoric. I have seen the calves taken away, and the calves left with them. And yet we are always getting, under all these circumstances, parturient apoplexy. I do not think there is one preventive, except perhaps mammitis. The reason I put the last paragraph in was that I thought it had some bearing on the treatment of parturient apoplexy which has been advocated at the present day, viz., Schmidt's treatment.

EXTRACTS AND NOTES.

EDINBURGH BUTCHERS AND TUBERCULOSIS

The members of the Edinburgh Master Butchers Association have decided that from and after the New Year they will purchase fat stock only under a warranty of soundness as regards tuberculosis. On the 24th ult. the following circular was issued to the members of the Association, and as the members with one accord signed the pledge referred to, the resolution stated on the circular will take effect as from January 1, 1899:—

For many years our trade has suffered severe losses from the fat cattle they bought at markets as sound being condemned, when slaughtered, on account of tuberculosis. Repeated efforts have been made to obtain from Government redress for this state of matters, but without success.

The report of the recent Royal Commission on Tuberculosis bears out that tuberculosis is not only a preventible disease, but by the use of tuberculin it can be entirely eradicated from a herd of cattle. Given care in the selection of healthy stock and attention to ordinarry sanitary requirements, it is a comparatively simple matter for the farmer to keep his cattle free from disease.

The Board of Agriculture has offered to supply tuberculin free of charge for the purpose of testing cattle, but the Royal Society of Agriculture in England and the Chamber of Agriculture in Scotland have not as yet seen their way to accept and make use of this offer: probably because butchers have hitherto purchased fat cattle indiscriminately and without requesting any guarantee as to freedom from disease.

At a meeting of the trade held on 21st November, it was resolved to recommend members in future to confine their purchase of fat bullocks and heifers to such as were guaranteed from disease and fit to pass the inspectors acting on behalf of the Edinburgh public health authorities.

As it is very desirable that the trade should be unanimous on this question, you are requested to fill up the enclosed post-card and return it to the secretary.

THE CAPE GOVERNMENT AND THE VETERINARY SURGEONS.

In the Legislative Council on December 5th, the House resumed committee of supply on the estimates, and the following discussion occurred.

The Veterinary Surgeons.

On the vote of £140,479 for the Department of the Secretary for Agriculture.

Mr. Herholdt explained that he should withdraw certain amounts under various heads, amounting altogether to £4,940, leaving the sum to be voted £135,539.

Mr. Du Toit moved to reduce the vote by £2,800. He did so to express his dissent with the item, veterinary surgeons. He did not think the land had been rendered any the more prosperous through those veterinary surgeons, and he therefore moved as he had done to test the feelings of the House on the matter. He did not think it was for the best interest of the land that they should continue to maintain all those veterinary surgeons. The aims of those gentlemen were very good and they might follow the experiences gained by other men in other lands, but they were of no use in this country. To go outside the Bond, his conviction in that respect had been strengthened by the Government Commissions on which he had sat. Besides, he had talked with practical men in the division of Richmond, which he represented, and he did not find one who believed in that heavy outlay for veterinary surgeons. They could give the farmers no remedies for the diseases which infected their stock, and he referred to South African history to show that such diseases were more prevalent now than they were long ago. During the past year 26,900 horses had died, 11,896 of them from horse-sickness, so that the farmers could not but believe that the veterinary surgeons were of no use. He supported his contention by quoting the heavy losses that stock-farmers had recently had in sheep and goats and other stock.

Business was suspended at 6 p.m. and resumed at 8 p.m.

Mr. Du Toit (continuing) contended that veterinary surgeons had not discovered effective remedies against lung-sickness, lame-sickness, and some other diseases among cattle. He produced a number of instances to prove, as he said, that the veterinary surgeons had done the country a lot of harm. He left it for others to say what good they had done. He had no faith in their reports. He would believe nothing as to their success unless certificates by practical farmers were produced. He would not object to Dr. Hutcheon and five assistants being kept on, but not one more. He moved that the vote be reduced by £2,800.

Mr. Stead said it was motions of this kind which roused the feeling of this country, and they felt that such proposals meant retrogressive legislation with a vengeance. He could understand such a motion if the farmers paid the veterinary surgeons, but the veterinary surgeons were paid from the whole revenue of the country. If the general body of taxpayers consented to be taxed for the benefit of the farmer, then he certainly ought to be satisfied. The veterinary surgeons could not combat drought. Who brought about the remedy for rinderpest but the veterinary department, through a specialist in the same line. This specialist had taught their veterinary surgeons how to act; and now it was proposed that they should be driven out of the country. The farmers showed an immense amount of ingratitute after what had been done for them by the taxpayers of this country. He really could not understand a motion of this kind.

Mr. Douglass said he had a great deal of sympathy with those who said the vote upon veterinary surgeons was a waste of money. The great mistake in the past had been that the Government had utilised the services of practitioners who were not necessarily investigators or the discoverers of cures for diseases.

Mr. Wienand said he was glad to find a Progressive side with them. However, he would to-night vote with those who said that the veterinary surgeons should not be abolished. Was it not strange that though the farmers in this country had had to do with cattle for more than a hundred years they had, comparatively speaking, discovered no remedy for the diseases of their cattle. He contended that it was only fair to give the veterinary surgeons a trial. The hon. member for Richmond (Mr. Du Toit) was wrong in saying that it was the Colonial farmers who discovered a remedy for lung-sickness, for many years before veterinary surgeons in Holland had discovered inoculation as a remedy. They objected to veterinary surgeons, but he would remind them that even Dr. Koch was in a way a veterinary surgeon. It was a fact that though some of them had no faith in those men they sent for them whenever an unknown disease broke out among their cattle. If it was a desire for retrenchment that induced his friend to move that reduction, he would suggest that farmers should pay the travelling expenses of the veterinary surgeons, which amounted to £2,000, an amount almost equal to the proposed reduction. They should remember that in other countries farmers had to pay out of their own pockets for the services of those men. How often had farmers by merely having a conversation with a veterinary surgeon been put upon the right track? Simply by their intercourse with the farmers they did an enormous amount of good.

Mr. Herholdt said he did not wish to put a stop to the discussion, but he would say that the veterinary surgeons were engaged by contract. He had heard nothing that would justify the House reducing the vote. Was it fair to expect the surgeons to be perfect? Were their doctors able to cure all human diseases, and to prevent people dying? He confessed that there were some reason for complaints, and that some of those men had not always been successful. But he hoped the House would not vote the reduction and decide that the number of veterinary surgeons should be reduced. The Government would take into earnest consideration the suggestion of the hon. member for Graham's Town (Mr. Douglass). He hoped the hon. member would withdraw his amendment for he could give him the assurance that during the recess the Government would earnestly consider the question, and would, if found necessary, even reduce the number of veterinary surgeons.

Mr. Van Wyk said the Government should as little support veterinary surgeons as it supported doctors. If doctors were capable they made their way, and men came to them for advice and remedies. In exactly the same way farmers would go to veterinary surgeons if they proved themselves capable. But he entirely objected to Government supporting these men.

Mr. Olivier said he would be the first to vote for retrenchment, but also the first to vote for progress. And he considered that it would be a sign of retrogression if they abolished veterinary surgeons.

Mr. D. J. Marais told of how Mr. Crowhurst arrived at Klipheuvel Station, discovered glanders among some mules, had a few shot, and further, by giving remedies, stamped out the disease completely. He (Mr. Marais) would be in favour of retrenchment, but would be no party to abolishing veterinary surgeons.

Mr. Hockly asked for what period the surgeons were engaged, how much of the time was unexpired, and whether it was intended to retain their services after the period for which they were specially engaged had ended. The hon. member for Richmond had made his regular complaint against the veterinary surgeons, who, he

seemed to expect, ought to be able to cure every disease every animal ever suffered from. If the hon. member and his farmer friends knew so much more than the surgeons, how was it they suffered such losses of stock? This country was the first in all history to discover a remedy for rinderpest, and if they had in no other way justified their existence, they had done it by their services in that respect, for now farmers preferred an outbreak of rinderpest to one of lung-sickness, so well was the once dreaded plague in hand. (Cheers).

Mr. De Wet said the division of Wodehouse had given veterinary surgeons repeated trials, but they had proved themselves a failure. He was not against veterinary surgeons, but against their appointment by Government He would prefer Government paying them a small salary, even as to district surgeons, and to make them for the rest make their own living. He knew of cases where farmers were literally ruined through the negligence of veterinary surgeons. One of them was Mr. Jackson and the others were the two brothers Astrupp. Let them ask the Kafirs who were the cause of their cattle having all died, and ignorant though they were, they would say that the veterinary surgeons were the cause. A good veterinary surgeon practising on his own and without Government support would soon become rich, provided he were really a capable man. He would vote for reducing the vote by £2,800.

Mr. Laing said he would like to know where these gentlemen were stationed. Of the Colonial Veterinary Surgeon at £1000, and his assistant he said nothing; but there were assistants, one at £500, one at £435, and three at £400. (Ministerial cheers.)

Mr. Herholdt, in answer to the hon. member for Fort Beaufort (Mr. Hockly) said that the veterinary surgeons were engaged under a three years' contract, which would expire in a few months—(Ministerial cheers)—but was renewable. He had been talking this matter over with the chief surgeon, Dr. Hutcheon, and there was a likelihood of his suggestions being carried out, and placing some of these officers at experimental stations. He could not, however, give the House any details, but some alterations might come. He personally inclined to the suggestion that we should have a well-qualified man at these stations, competent to make original researches. Dr. Hutcheon was on sick leave—(Opposition cries of "Overwork"—but on his return he (Mr. Herholdt) would go thoroughly into the question with him. As to the stations of the veterinary surgeons, there were two at Kei Road, three at Fort Beaufort—(laughter)—and one each at Somerset East, Stellenbosch, Knysna, Kokstad, Cape Town, Uitenhage, Queen's Town, and Graaff-Reinet.

Mr. Laing said he was rather in favour of supporting the amendment—(Ministerial cheers)—but suggested that sufficient money should be voted to pay the veterinary surgeons up to the expiration of their engagements. (Cheers.) Year after year this matter came before Parliament, and there was always some reason found for keeping on these gentlemen for another year. (Cheers.) He did not wish to see investigation stopped, but the work of research for which the doctors were partly engaged could not be done while they were peddling about the country in all directions. (Ministerial cheers.) There may have been some necessity for them in times bygone, but it was impossible to deny that the result of original research had not been satisfactory. (Ministerial cheers.) We had a small army of veterinary surgeons, apart altogether from the officers of the Bacteriological Institute at Graham's Town—which in itself cost two or three thousand pounds a year, that had already been voted, and he was bound to say, without detracting at all from Dr. Edington's work, that the result of his researches was not all they could have wished. (Ministerial cheers). The time had come, in his opinion, when we should consider what should be done in regard to this army of veterinary surgeons. (Ministerial cheers.)

Mr. Botha said the amendment of the hon. member for Richmond (Mr. Du Toit) was most fair. He (Mr. Botha) knew of a veterinary surgeon who came to his neighbour's farm blind drunk, and had to go and sleep. Whenever he woke he cried "Rinderpest." Well, as soon as he was sober enough he cut up the dead animal, and with his clothes besmeared with blood he left for some other farms. It was afterwards noticed that on those very farms rinderpest broke out. He knew of another case where one of them said that a horse had died of sunstroke. If the vote was reduced by the sum proposed there would still be sufficient to keep six of them.

Mr. Immelman said in Victoria West the sheep got what the farmers called "stiff-sickness"—their legs got so stiff that they could not move. The farmers asked a young veterinary surgeon what they had to do, and he actually advised them to poultice the legs of the sheep. (Great laughter.)

Mr. Van Der Walt said, in fairness to the veterinary surgeons, he would say that with regard to the rinderpest near Vryburg they had simply to carry out the instructions of the Government. He would move as a further amendment that the vote be reduced by £2,000.

Mr. Du Toit said he would withdraw his amendment in favour of the amendment just proposed.

Mr. Frost said that during the last few years the whole of the veterinary staff had been engaged in combating the rinderpest. They only had thirteen veterinary surgeons to deal with all the stock of this vast country. (Hear, hear). It was stated that 1,909 horses had died in the Wodehouse district from horse-sickness, and there was not a veterinary surgeon to deal with them, and it was argued that there was not enough for them to do. In regard to the rinderpest it was said the veterinary surgeons had done no good, and even that they had been the means of spreading the disease. Whether that was true or not the veterinary surgeons had saved the country an enormous number of cattle. (Hear, hear). In regard to Dr. Edington, however much he had been blamed, they must give him credit for having improved upon Dr. Koch's system of inoculation, and thus saved the country an enormous number of cattle. He was sorry to hear that the Secretary for Agriculture contemplated a reduction of the veterinary staff, for he believed that the people of the country, who paid for the veterinary surgeons, desired rather to see the staff increased. He hoped the House would not vote for the reduction, and he would like to see that although they had had this debate, they would still have as many veterinary surgeons on the list next year as there are to-day. (Hear, hear).

Dr. Harris said the back-bench members had usurped the whole of this discussion, but he would like to know what the Treasurer thought of this proposal to reduce the Estimates. (Laughter). It was said maliciously that the Treasurer's agricultural operations so far at Stellenbosch had been confined to the gentle art of growing violets—(laughter)—in which case he would not know anything much about veterinary surgeons or surgery. He was surprised to hear we had only thirteen veterinary surgeons in the whole of the colony. They were, as a body—although they might have made little errors, as all doctors did—(laughter)—extremely efficient men, civil, attentive, and anxious to help where they could, and it would be an act of retrogression if the House attempted to reduce their numbers or lessen their influence.

Mr. Tamplin thought that if they were to adopt a similar system in regard to veterinary surgeons as they did in regard to district surgeons—give them a small salary and allow them private practice—they would have far more veterinary surgeons of ability coming to this country. At the present time so far did they carry

their red-tape system in the Agricultural Department that veterinary surgeons were not allowed to charge a fee. Many of the veterinary surgeons in the country had taken very high prizes in the veterinary examinations in England, and they certainly received more consideration than they were shown here. He hoped the hon. member for Colesburg would leave the matter in the hands of the Agricultural Department. He hoped the hon. member would not press his motion.

Mr. FINCHAM said that the farmers in Bechuanaland would only be too glad to get these veterinary surgeons and pay them more money. He was against the amendment.

Mr. WARREN said that they had had this discussion session after session. It was a good, old hardy annual, and it enabled farmers to clear their minds. He did not remember, however, that they had ever gone to a division on it. He hoped that now they had relieved their minds they would let the matter drop.

Mr. A. J. FULLER said that when the motion was introduced he thought it was a huge joke. The hon. member who introduced this motion challenged them to show evidence of the good done by veteriuary surgeons. Perhaps the hon. member would remember some years ago the good done by veterinary surgeons in the matter of goat disease. (Hear, hear.) If there were too many veterinary surgeons in the Western Province he would like them to be sent to the East ; as unfortunately when he wanted a veterinary surgeon he could not get one. He thought a veterinary surgeon ought to be established in the border district.

Col. SCHEUBRUCKER said that an hon. member on the other side also had said he had no objection to remunerating a great light of service like Dr. Koch. Now he put it to the House whether it was not necessary to have people to carry out practically any great discovery such a great light of science might make. They could not have a veterinary surgeon at their call in every part of the country unless they had a sufficient number. Through the veterinary surgeons they had fought against their enemy—rinderpest.

The amendment was negatived.

THE PROPAGATION OF PLAGUE BY INSECTS.

Dr. Simond has studied the subject since 1893 clinically and experimentally, first in the Chinese province of Quang-Si at Long Tcheon, where he was then stationed, and later in India, chiefly at Bombay. By a series of closely-reasoned arguments he showed that there are two agents in the transport and spread of plague. The first and most important is the rat. By this animal the disease is spread by slow degrees, but it is the essential cause in the characteristic outbreaks of epidemics. The other agent is man, by whom plague is transported to greater distances than those attained by the rat. After the introduction of infected rats into healthy surroundings an epidemic generally followed after a brief delay, whilst the arrival of an infected human being was not always followed by other cases of infection. For such an occurrence a coincidence of favouring circumstances appeared to be necessary, the most important of which seemed to be the previous transmission of the virus to rats. An interval was observed between the death of the importing case and the commencement of the epidemic which represented the lapse of time necessary for the development of plague amongst the rats.

Dr. Simond established the fact that plague always occurred first amongst the inhabitants of the quarter where it had first attacked the rats. That, in large cities it remained confined to that quarter so long as the rats did not emigrate. From the moment, however, when that migration began, plague would spring up in the other quarters and in the villages around, always following the routes taken by the infected animals.

From numerous observations he concluded that direct contact with a rat dead of plague was frequently the cause of the human disease, though such contact was not only not indispensable, but in ninety-nine cases out of a hundred did not occur, and that it was sufficient for rats to die in a house to infect it, and render it for a long time dangerous to its inhabitants. The gravity of a human epidemic was found to be on a par with the gravity of the rat epizootic. Dr. Simond also attempted to prove that after the great mortality amongst the rats had ended, plague still existed amongst them, though in a mild form, and that to this must be attributed the sporadic cases occurring after an epidemic had practically died out.

From an examination of the climatic conditions and seasons existing in the various plague areas, he concluded that these factors had little influence on an outbreak, with the exception that all the great epidemics of China and India reached their maximum at periods of the year other than the hottest. Many experiments were undertaken to determine whether rats and other animals could be infected by the alimentary canal. To this end cultures of the B. pestis, and the blood and organs of animals dying of plague were mixed with the food, but the results were in every case negative. Again, mice were injected subcutaneously with watery suspensions of intestinal contents, and with the urine of a rat dead of plague. Some died within fifteen hours, but death proved to be due to other causes, while the rest never exhibited any symptom of plague. Nor did attempts to infect animals by the lungs meet with greater success. Monkeys were made to respire air containing suspended particles infected with plague bacilli, but in no case did any symptoms of plague supervene.

He points out that clinically it had long been recognised that the point of infection in man is marked by a local reaction, a vesicle, which in a certain proportion of cases ushers in an attack of plague. This vesicle is always situated on a region where the skin is fine and delicate. This local reaction, he holds, is the result of attenuated virulence on the part of the microbe ; where the vesicle with its corresponding bubo is wanting, he believes that their absence is due to the much greater virulence of the bacillus, and not to a different method of infection. The striking contrast between the difficulty of infecting animals by the alimentary canal, and the ease with which infection by the skin occurred, induced Dr. Simond to look for some active agent by which the virus might be deposited in the skin. On *a priori* grounds he suspected the flea and the bug, and he proceeds to show that such infection might occur through the flea. He discovered that fleas of a certain kind infested rats that were plague-stricken. So long as the rat was healthy, it kept its fur clean, and killed the fleas, but when ill it no longer defended itself, and fleas then swarmed in its fur in hundreds. These fleas were examined after the death of the rat, and in many cases a bacillus morphologically like that of plague was found in the contents of their intestines. Isolation by culture was not possible, owing to the conditions under which the work was done, but the examination of the contents of the stomach of fleas from the same source, but which had not come in contact with diseased animals, failed in every case to reveal the presence of such bacilli.

Fleas taken from diseased rats were ground up with water and inoculated into three mice : one died of typical plague, after eighty hours, the other two died in nine and twelve days respectively, but the B. pestis was not found in their organs. A rat, apparently ill, obtained from a plague area, was placed in a large glass jar. There were on it a few fleas, some more fleas taken

from a cat were added, and when the rat appeared to be about to die, another rat in a cage was introduced into the jar. The first rat died, and its body was removed after thirty six hours. The second rat died of typical plague in five days. Another similar experiment on a mouse terminated fatally, but two adult rats escaped. It was noticed that they defended themselves skilfully against the attacks of the fleas. When the flea, fresh from an infected carcass, attacked a new host, it deposited a minute drop of digested blood at the point of suction.

In the light of these experiments, Dr. Simond quotes the observation of Yersin that plague bacilli multiply in the intestines of flies. It is therefore no matter for surprise that the same holds good for fleas. So far as the transmission of plague from man to man is possible, Dr. Simond suggested that other parasites, more particularly the bug, might be responsible.

Finally, as a result of his observations and experiments, Dr. Simond comes to the conclusion that the mechanism of the spread of plague includes the conveyance of the virus by rat and man, its transmission from rat to rat, man to man, and from either species to the other, by the agency of parasites ; and that measures of prophylaxis should be directed against each and all of these factors. —*British Medical Journal.*

THE ANNUAL REPORT, A.V.D., 1898.

Home.

The total number of animals is 514 more than last year, *i.e.*, 1897. The highest percentage of deaths appears to be in the regimental transport, but this can be accounted for by the fact that animals that are too old, or unfit for other branches of the service, are transferred to this corps.

The admissions are largest in July, August, and September, on account of this being the drill and manœuvre season.

The largest number of admissions is always in surgical diseases and injuries—this can easily be understood, as all army animals are specially selected before purchase.

It appears the largest number of horses are usually sold after the summer drills, viz., in September, October and November, when the average price then obtained is much less than that in the early part of the year, this is no doubt owing to the fact that the large cab owners, mineral water manufacturers, &c., are at this time of the year reducing their summer stock.

Not a case of glanders has been seen in the Army for ten years. This shows the advantage of only buying young horses, and demonstrates the non-existence of the disease in country districts. The ravages which would follow infection are still an argument for stamping out among the registered studs.

Army Vaccine Institute.

The Vaccine Institute at Aldershot appears to be still doing good work and keeping up its reputation, supplying lymph to both the Army and Navy, or in other words all the regular armed forces of this country and the colonies, except India, at the ridiculous cost of under £100 per annum. The percentage of success is satisfactory in both primary and re-vaccinations. No complaint has ever been made of the Aldershot lymph. This is interesting at the present time of wholesale conscientious objections, as no doubt had all lymph been as carefully prepared there would not have been the very strong prejudice against vaccinations among the ignorant which now exists.

This report shows what can be done by organised professional assistance, and reflects great credit not only on the members of the Army Veterinary Department, but on the veterinary profession at large, and the colleges and professors who have educated them in their callings.

Egypt.

Great credit is due to the Senior Veterinary Officer in keeping the Army horses free from glanders which appears to be rife in the country ; also from the fact that all remounts for the army of occupation are purchased outside of Egypt.

The report for next year should be an interesting one from a surgical point of view on account of the recent operations in the Soudan.

South Africa.

Mortality has been heavy and bears out the reputation of this part of the world.

Glanders appear to have broken out, but was eradicated by prompt measures, combined with a judicious use of mallein. This should be of particular interest to the Board of Agriculture, who from the latest reports appear to be still considering its value. In this respect South Africa is in advance of England.

Sanitary Institute Certificate.

In the "Pass List" of the Sanitary Institute (London) Inspectors Examination held in Manchester on the 16th and 17th inst., the name of Mr. Joseph H. Carter, F.R.C.V.S., Burnley, appears amongst the successful candidates. Mr. Carter studied under Mr. Robert Mushens, Science Master, Sunderland.

CORRESPONDENCE

"THE STEEL MEMORIAL."

Sir,

I had trusted, even to the last, that there was some reason, possibly a sufficient reason, for violating the solemn and repeated pledges given when the Steel Memorial money was collected. Your foot-note of last week finally removes that trust.

As the person who moved the resolution you must have known the reasons, if such there were. A month ago you wrote an article ostensibly to clear up the question. For four weeks you have continued a controversy whose sole object was to elicit the reasons. At any time during those four weeks you could have settled the whole matter by giving those reasons. You have consistently evaded doing so. It is not for me to say why.

But I may point out that it is not a sign of strength to attribute improper motives. I am not drawing on my "unaided imagination" or displaying "histrionic ability" —in other words, acting a part and a *false* part—in asking for information, which you of all persons, should take the earliest opportunity of supplying. As the person who volunteered "to remove the misunderstanding as to what this Memorial was instituted for," as one who had "carefully looked up the facts," as the mover of the resolution now under discussion and the Editor of an ostensibly honest publication, it must surely be apparent to you that "truth and honour" demand some better explanation than reference to your opponent's "histrionic ability" or a suggestion that he states that which is not. If *that* is your sole answer further controversy is futile.

As for biblical references I can only re-echo the sentiments of the children of Israel: "What is this that is come unto the son of Kish? Is Saul also among the prophets?" while commending to your careful perusal the remarks of a brother sage, to wit, Isaiah: "Woe unto them that call evil good, and good evil; that put darkness for light and light for darkness; . . . . which justify the wicked for reward and take away the righteousness of the righteous from him." (Isaiah v. 20 and 23).—Yours faithfully,

JNO. A. W. DOLLAR.

56, New Bond Street, W.

[Mr. Dollar says "it is not a sign of strength to impute improper motives." We quite a gree, and have refrained from doing so. When he talks about "evasion," "violation of solemn pledges" etc. he comes perilously near a contradiction of his own dogma. For the "reason" of the change of method in the manner of commemorating Steel see our very first note on the subject.—ED.].

COMMUNICATIONS, BOOKS, AND PAPERS RECEIVED:—Messrs. Jno. A. W. Dollar, R. Rutherford, J. Russell, J. M. Watson, T. F. Prime, D. M. Storrar, R. H. Mushens, W. Awde.
The Peterborough Advertiser, Cape Times.

Veterinary Societies—Addresses.

Alterations for this list must be duly notified by the Secretaries

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Meetings, First Thursday in each month, except August and September, 10 Red Lion Square. Holborn, at 7 p.m.

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Second Tuesday in August, November

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